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Texas Agricultural Extension Service

People Helping People

WEED CONTROL IN WINDBREAKS

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Weed control is important in tree plantings because weeds and trees compete for available moisture, nutrients and sunlight. Insects, small animals and diseases that may thrive in heavily weeded areas can also damage young trees.

Weeds can be controlled by mechanical or chemical methods. Mechanical control involves cultivating between trees or hoeing around trees. Attempts to cultivate too near trees often result in damage or destruction. Hand hoeing is labor-intensive and usually gives only short-term control. Chemical control consists of using preplant incorporated, preemergent or post-emergent herbicides. Often, a combination of applying herbicides in bands along the tree rows and disking areas between rows gives the best control.

HERBICIDE APPLICATIONS

Herbicides are applied either preemergent or post-emergent. Preemergent herbicides are applied to the soil before weed seeds germinate, generally in late winter or early spring. Usually it is easier to control the weeds before planting the trees. Preemergent herbicides can be applied to the site just before planting the trees; usually the soil must be clean-tilled for the preemergent herbicide to be effective. In some cases, post-emergent herbicides can be applied to a site the season before planting. In areas subject to wind erosion, applying bands of herbicides may prepare the site without disturbing the soil unduly.

Preplant incorporated herbicides must be mechanically mixed with the soil, making them difficult to use next to existing trees. Preemergent herbicides depend upon rainfall to carry them into the soil where grass and broadleaved weed seeds germinate.

Post-emergent herbicides are applied to the foliage of actively growing weeds, hence they are usually applied during spring or summer.

Herbicides can be selective or non-selective. Selective herbicides are effective on only certain kinds of weeds, such as grasses; others are effective only on broadleaved weeds. Non-selective herbicides may be effective on a large variety of plants; however, use them carefully around trees.

The choice of herbicide depends on the kinds of trees, kinds of weeds, application method and the site. Read the label and make sure the herbicide you use will not harm trees but will be effective on treated weeds. Follow all directions and use the rates and precautions given on the label.

SPRAYER CALIBRATION

To insure proper herbicide application, calibrate the sprayer before mixing the herbicide. Hand-held sprayers are the most difficult to use accurately because variations in walking speed and the difficulty of maintaining constant pressure greatly affect the amount of herbicide applied; also, nozzle movement can cause overlapping of bands which may allow more herbicide than desired on young trees.

Use Only Water in the Tank to Calibrate Sprayer

Use the following steps to calibrate a sprayer:

1. Determine a comfortable speed to drive the tractor; note the gear selection and revolutions per minute. Use a speed of around 3 miles per hour and a pressure of 25 to 35 pounds. If using a hand sprayer, find a comfortable walking speed.
2. Determine the time required to travel 100 feet at the chosen speed.
3. Determine the pressure at which spray is to be applied by using the pressure gauge or a constant number of pumps for a hand-held sprayer. (Hand-held sprayers can be equipped with pressure gauges.)
4. Determine the width of swath the spray nozzles will cover at the selected pressure.
5. Multiply the swath width in feet by 100 feet.
6. Determine the portion of an acre that will be covered.

$$\frac{\text{(Width of swath [ft])} \times \text{(100 ft)}}{\text{43,560 sq ft per acre}} = \text{Portion of acre}$$

7. Operating the sprayer at the selected pressure, collect the spray output from each nozzle for the time required to travel 100 feet. (If multiple nozzles are being used, check each nozzle to make sure they are all emitting the same amount of spray material.)
8. If spot treating, determine the amount of time it takes to spray two 3-foot diameter circles. The portion of an acre covered is then 0.0016 acres.
9. Determine the gallons of water being applied per acre under the above conditions.

$$\frac{\text{Gallons of water collected}}{\text{Portion of acre}} = \text{Gallons of water per acre}$$

10. Following label directions, use the formula to compute the amount of herbicide to add to your particular spray tank.

$$\frac{\text{Tank capacity}}{\text{Gallons of water per acre}} \times \text{Rate of herbicide per acre} = \text{Amount of herbicide per tank}$$

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HERBICIDE RECOMMENDATIONS FOR WINDBREAK ESTABLISHMENT

Product name (common name)	Product rate per acre	Comments
	Site Preparation	
Roundup (glyphosate)	1.0 to 4.0 qt	Apply in 10 to 40 gal/acre of water plus 0.5 to 1.0 percent nonionic surfactant. Rate needed depends upon weed species present. Apply to actively growing weeds in fall before planting. Useful in areas where clean tillage will cause erosion. Burn down of existing vegetation can be expected. Will not control germinating weed seed.
	Preplant Incorporated (before transplanting)	
Treflan 4EC or 5G (trifluralin)	1.0 to 2.0 pt or 10 to 20 lb	Apply in 5 to 40 gal/acre of water to clean tilled soil before planting. Incorporate 2 to 3 inches deep or by 0.5 inches of rain or irrigation.
Enide 90W (diphenamid)	6.6 to 8.8 lb	Apply in 30 gal/acre of water and incorporate mechanically 0.5 to 2.0 inches deep or by 0.5 inches of rain or irrigation.
	Post-Plant (after transplanting)	
Preemergent (before weeds emerge)		
Casoron 50W (dichlobenil)	8 to 12 lb	Apply in 50 gal/acre of water in spring before weeds emerge or after cultivation. Rainfall or shallow incorporation improves weed control. Do not apply until 4 weeks after transplanting.
Dacthal W-75 (DCPA)	14 to 16 lb	Apply in 50 to 100 gal/acre of water to clean tilled soil. Expect weed control up to 3 months.
Goal 1-6E (oxyfluorfen)	2.5 to 5.0 qt	CONIFERS ONLY. Apply in at least 20 gal/acre of water before bud break or after foliage has hardened off. May apply over transplants. Do not disturb soil after treatment.
Surflan 75 WP or 4 AS (oryzalin)	2.66 to 5.33 lb or 2.0 to 4.0 qt	Apply in 20 to 40 gal/acre of water to clean tilled soil. One-half inch of rain or sprinkler irrigation is needed within 2 weeks after application. If weeds emerge from lack of rain, use shallow cultivation without disturbing the herbicide.
Post-emergent (after weeds emerge)		
Fusilade 200 or 4E (fluazifop-p-butyl)	1.0 to 4.0 pt or 0.25 to 1.0 pt	Apply in 5 to 40 gal/acre of water at 40 to 60 psi pressure. Add a nonionic surfactant (not oil) at 0.5 pt/25 gal of spray.
(fluazifop-butyl)	For spot treatment, mix 2 qt or 12 oz of 4E in 25 gal of spray + 0.5 pt nonionic surfactant.	Treat actively growing young grasses as an overtop or directed application, depending on tree species. Broadleaved weeds and sedges are not controlled. Rate is dependent on grass species and climatic conditions.
Goal 1.6 E (oxyfluorfen)	2.5 to 5.0 qt	CONIFERS ONLY. Apply in at least 20 gal/acre of water plus a nonionic surfactant at 2 pt/100 gal of spray. May be applied over top of transplants before bud break or after foliage has hardened off. Apply to weeds less than 4 inches tall.
Gramoxone Super (paraquat)	1.5 to 2.5 qt	Apply in 30 to 150 gal/acre of water plus a nonionic surfactant at 0.5 to 2.0 pt/100 gal of spray. Thoroughly cover young weeds and grasses (1 to 6 in tall) while succulent. DO NOT ALLOW SPRAY TO CONTACT GREEN STEMS, FRUIT OR TREE LEAVES. This requires a directed application. This is a restricted-use pesticide and should be applied by certified applicators.
Poast (sethoxydim)	1.5 to 2.5 pt 1.0 qt/25 gal of water + 1 qt oil concentrate for spot treatment	Apply in 5 to 20 gal/acre of water plus 2 pt/acre of non-phytotoxic oil concentrate at a pressure of 40 to 60 psi. Apply to young, actively growing grasses. Does not control broadleaved weeds and sedges.
Roundup (glyphosate)	0.5 to 4.0 qt A 2% spot spray can be mixed by adding 2 qt/25 gal of spray	Apply in 10 to 40 gal/acre of water as a directed spray toward the base of certain tree species. AVOID CONTACT WITH GREEN BARK, STEMS, FRUIT OR LEAVES OF TREES. Repeat applications may be necessary. Rate depends on weeds present.

Product names are not intended as an endorsement of the product of a specific manufacturer, nor is there any implication that other formulations containing the same active chemical are not equally as effective. Product names are included solely to aid readers in locating and identifying the herbicides suggested.

Refer to herbicide labels or supplemental labeling information for additional details. Tolerant tree species are listed on product labels. Observe safety precautions.

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